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45

55

60

<221> genomic_DNA_fragment

<222> (1)..(9949)

<223> Sequence of 9949 bp Sau3AI genomic DNA fragment of S. bulbocastan um 2002 BAC BlbSP39 present in pSP39-20. The genomic fragment har bours the Rpi-blb2 gene including natural elements necessary for expression. Initiation codon (ATG position 1413-1415), the termi nation codon (TAG position 5300-5303)

<220> 65 <221> start_codon

<222> (1413)..(1415)

<223> Sequence of 9949 bp Sau3AI genomic DNA fragment of S. bulbocastan um 2002 BAC BlbSP39 present in pSP39-20. The genomic fragment har bours the Rpi-blb2 gene including natural elements necessary for expression. Iinitiation codon (ATG position 1413-1415), the termi nation codon (TAG position 5300-5303)

10 <220>

<221> stop_codon

<222> (5300)..(5303)

15

20

25

5

<223> Sequence of 9949 bp Sau3AI genomic DNA fragment of S. bulbocastan um 2002 BAC BlbSP39 present in pSP39-20. The genomic fragment har bours the Rpi-blb2 gene including natural elements necessary for expression. Iinitiation codon (ATG position 1413-1415), the termi nation codon (TAG position 5300-5303)

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50	Asn Glu Glu 35	u Asn Gln Lys	Ala Leu Asp 40	Lys Asp Gln	Val Glu Lys 45	Ile					
	Lys Leu Lys 50	s Met Ala Phe	Ile Cys Thr 55	Tyr Val Gln 60	Leu Ser Cys	Ser					
55	Asp Phe Gl 65	u Gln Phe Glu 70	Asp Ile Met	Thr Arg Lys 75	Arg Gln Glu	Val 80					
60	Glu Asn Le	u Leu Gln Pro 85	Leu Leu Asp	Asp Asp Val	Phe Thr Ser 95	Leu					
65	Thr Ser As	n Met Asp Asp 100	Cys Ile Ser 105	Leu Tyr His	B Arg Ser Tyr 110	Lys					
	Ser Asp Al	a Ile Met Met	Asp Glu Gln	Leu Asp Phe	e Leu Leu Leu	Asn					

Leu Tyr His Leu Ser Lys His His Ala Glu Lys Ile Phe Pro Gly Val Thr Gln Tyr Glu Val Leu Gln Asn Ile Cys Gly Asn Ile Arg Asp Phe His Gly Leu Ile Val Asn Gly Cys Ile Lys His Glu Met Val Glu Asn Val Xaa Pro Leu Phe Gln Leu Met Ala Asp Arg Val Gly His Phe Leu Trp Asp Asp Gln Thr Asp Glu Asp Ser Arg Leu Ser Glu Leu Asp Glu Asp Glu Gln Asn Asp Arg Asp Ser Arg Leu Phe Lys Leu Ala His Leu Leu Leu Lys Ile Val Pro Val Glu Leu Glu Val Ile His Ile Cys Tyr Thr Asn Leu Lys Ala Ser Thr Ser Ala Glu Val Gly Leu Phe Ile Lys Gln Leu Leu Glu Thr Ser Pro Asp Ile Leu Arg Glu Tyr Leu Ile Pro Leu Gln Glu His Met Val Thr Val Ile Thr Pro Ser Thr Ser Gly Ala Arg Asn Ile His Val Met Met Glu Phe Leu Leu Leu Ile Leu Ser Asp Met Pro Lys Asp Phe Ile His His Asp Lys Leu Phe Asp Leu Leu Asp Arg Val Gly Val Leu Thr Arg Glu Val Ser Thr Leu Val Arg Asp Leu Glu Glu Glu Pro Arg Asn Lys Glu Gly Asn Asn Gln Thr Asn Cys Ala Thr Leu Asp Leu Leu Glu Asn Ile Glu Leu Leu Lys Lys Asp Leu Lys His Val Tyr Leu Lys Ala Leu Asp Ser Ser Gln Cys Cys Phe Pro Met

Ser Asp Gly Pro Leu Phe Met His Leu Leu His Ile His Leu Asn Asp

Leu Leu Asp Ser Asn Ala Tyr Ser Ile Ala Leu Ile Lys Glu Glu Ile Glu Leu Val Lys Gln Asp Leu Lys Phe Ile Arg Ser Phe Phe Val Asp Ala Glu Gln Gly Leu Tyr Lys Asp Leu Trp Ala Arg Val Leu Asp Val Ala Tyr Glu Ala Lys Asp Val Ile Asp Ser Ile Ile Val Arg Asp Asn Gly Leu Leu His Leu Ile Phe Ser Leu Pro Ile Thr Ile Lys Lys Ile Lys Leu Ile Lys Glu Glu Ile Ser Ala Leu Asp Glu Asn Ile Pro Lys Asp Arg Gly Leu Ile Val Val Asn Ser Pro Lys Lys Pro Val Glu Arg Lys Ser Leu Thr Thr Asp Lys Ile Thr Val Gly Phe Glu Glu Glu Thr Asn Leu Ile Leu Arg Lys Leu Thr Ser Gly Ser Ala Asp Leu Asp Val Ile Ser Ile Thr Gly Met Pro Gly Ser Gly Lys Thr Thr Leu Ala Tyr Lys Val Tyr Asn Asp Lys Ser Val Ser Ser Arg Phe Asp Leu Arg Ala Trp Cys Thr Val Asp Gln Gly Cys Asp Glu Lys Lys Leu Leu Asn Thr Ile Phe Ser Gln Val Ser Asp Ser Asp Ser Lys Leu Ser Glu Asn Ile Asp Val Ala Asp Lys Leu Arg Lys Gln Leu Phe Gly Lys Arg Tyr Leu Ile Val Leu Asp Asp Val Trp Asp Thr Thr Trp Asp Glu Leu Thr Arg Pro Phe Pro Glu Ser Lys Lys Gly Ser Arg Ile Ile Leu Thr Thr 645 . Arg Glu Lys Glu Val Ala Leu His Gly Lys Leu Asn Thr Asp Pro Leu

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Asp Leu Arg Leu Leu Arg Pro Asp Glu Ser Trp Glu Leu Leu Glu Lys Arg Ala Phe Gly Asn Glu Ser Cys Pro Asp Glu Leu Leu Asp Val Gly Lys Glu Ile Ala Glu Asn Cys Lys Gly Leu Pro Leu Val Ala Asp Leu Ile Ala Gly Val Ile Ala Gly Arg Glu Lys Lys Arg Ser Val Trp Leu Glu Val Gln Ser Ser Leu Ser Ser Phe Ile Leu Asn Ser Glu Val Glu Val Met Lys Val Ile Glu Leu Ser Tyr Asp His Leu Pro His His Leu Lys Pro Cys Leu Leu Tyr Phe Ala Ser Phe Pro Lys Asp Thr Ser Leu Thr Ile Tyr Glu Leu Asn Val Tyr Phe Gly Ala Glu Gly Phe Val Gly Lys Thr Glu Met Asn Ser Met Glu Glu Val Val Lys Ile Tyr Met Asp Asp Leu Ile Tyr Ser Ser Leu Val Ile Cys Phe Asn Glu Ile Gly Tyr Ala Leu Asn Phe Gln Ile His Asp Leu Val His Asp Phe Cys Leu Ile Lys Ala Arg Lys Glu Asn Leu Phe Asp Gln Ile Arg Ser Ser Ala Pro Ser Asp Leu Leu Pro Arg Gln Ile Thr Ile Asp Cys Asp Glu Glu Glu His Phe Gly Leu Asn Phe Val Met Phe Asp Ser Asn Lys Lys Arg His Ser Gly Lys His Leu Tyr Ser Leu Arg Ile Ile Gly Asp Gln Leu Asp Asp Ser Val Ser Asp Ala Phe His Leu Arg His Leu Arg Leu Leu Arg Val Leu Asp Leu His Thr Ser Phe Ile Met Val Lys Asp Ser Leu Leu

										38						
		930					935	5				940				
5	Asn 945	Glu	Ile	Cys	Met	Leu 950	Ası	n His	. Leu	ı Arg	7 Tyr 955	Leu	Ser	Ile	Asp	Thr 960
10	Gln	Val	Lys	Туг	Leu 965	Pro	Le	u Sei	Phe	970	(Asn	Lev	Trp	Asn	Leu 975	Glu
	Ser	Leu	Phe	Val 980	Ser	Thr	As	n Arg	985 985		e Leu	Val	. Leu	Leu 990	Pro	Arg
15	Ile	Leu	Asp 995	Leu	Val	Lys	Le	u Ar		al Lo	eu Se	er Va	al Asj 10	p A:	la Cy	ys Ser
20	Phe	Phe 101		p Me	t As	p Al		.sp (Glu :	Ser	Ile I		Ile 1020	Ala (Glu i	Asp
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30	туг	Ser 104		s As	p Th	r Ly	/S A	Asn L045	Ile	Phe	Lys i	Arg	Phe 1050	Pro .	Asn	Leu
	Gln	Leu 105		u Se	r Ph	ne G		Leu L060	Lys	Glu	Ser '	Trp	Asp 1065	Tyr	Ser	Thr
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50	Asr	111		ys I	le L	eu T	rp :	Leu 1120	Arg	Glu	Phe	Pro	Leu 1125	Thr	Ser	Asp .
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Glu Lys Leu Lys Leu Arg Gly Cys His Lys Leu Glu Glu Ile Pro

1200 1195 1190 Pro Ser Phe Gly Asp Ile Tyr Ser Leu Lys Ser Ile Lys Ile Val 5 1210 Lys Ser Pro Gin Leu Glu Asp Ser Ala Leu Lys Ile Lys Glu Tyr 1225 10 Ala Glu Asp Met Arg Gly Gly Asp Glu Leu Gln Ile Leu Gly Gln 1240 1235 15 Lys Asn Ile Pro Leu Phe Lys 1250 1255 20 <210> 9 <211> 3774 <212> DNA 25 <213> Lycopersicon lycopersicum 30 <220> <221> CDS <222> (1)..(3774) 35 <223> Mil.2 from tomato 40 <400> 9 atg gaa aaa cga aaa gat att gaa gaa gca aac aac tca ttg gtg tta 48 Met Glu Lys Arg Lys Asp Ile Glu Glu Ala Asn Asn Ser Leu Val Leu ttt tct gct ctt agc aag gac att gcc aat gtt cta att ttc cta gag 96 45 Phe Ser Ala Leu Ser Lys Asp Ile Ala Asn Val Leu Ile Phe Leu Glu 20 144 aat qaq qaa aat caa aaa gct ctt gac aaa gat caa gtt gaa aag cta Asn Glu Glu Asn Gln Lys Ala Leu Asp Lys Asp Gln Val Glu Lys Leu 50 192 aaa ttg aaa atg gca ttt att tgt aca tat gtt cag ctt tct tat tcc Lys Leu Lys Met Ala Phe Ile Cys Thr Tyr Val Gln Leu Ser Tyr Ser 55 240 gat ttt gag cag ttt gaa gat ata atg act aga aat aga caa gag gtt Asp Phe Glu Gln Phe Glu Asp Ile Met Thr Arg Asn Arg Gln Glu Val 65 60 gag aat ctg ctt caa tca ctt ttg gat gat gtc ctt act agc ctc Glu Asn Leu Leu Gln Ser Leu Leu Asp Asp Val Leu Thr Ser Leu 288 85 65 acc agt aat atg gat gac tgt atc agc ttg tat cat cgt tct tat aaa 336 Thr Ser Asn Met Asp Asp Cys Ile Ser Leu Tyr His Arg Ser Tyr Lys 105 110

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15	cat His	G1A aaa	ttg Leu	ata Ile	ctg Leu 165	aat Asn	ggt Gly	tgc Cys	att Ile	aag Lys 170	cat His	gag Glu	atg Met	gtt Val	gag Glu 175	aat Asn		528
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										4 1								
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10	cgg a Arg T	ca ca hr Gl	a gt n Va	t aa 1 Ly 96	s Ty	t ct r Le	g cct u Pro	tto Phe	tct Ser 970	Phe	tca Ser	aac Asn	ctc Leu	tgg Trp 975	aat Asn	2928
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65	cta Leu	ctg Leu 1175	Thr	ctt Leu	tcc Ser	aag Lys	tgg Trp 1180	Glu	gtt Val	gga Gly	gag Glu	gaa Glu 1185	ser	ttc Phe	ccc Pro	3564

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	gt Va	g gc l Al	a at a Il	c gg e Gl	a aaq y Ly:	g gag s Gl	g att	t gt e Va	g aa l Ly	a aa s Ly	a ag s Se	t gg	t gg y Gl	t gt y Va	g cc 1 Pr	t cta o Leu	1056

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40	cta Leu	gga Gly	aac Asn	cta Leu	aat Asn 645	ctc Leu	tat Tyr	ggc Gly	tca Ser	att Ile 650	aaa Lys	atc Ile	tcg Ser	cat His	ctt Leu 655	gag Glu	1968
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	gaa Glu	ı gaçı ı Gli	g ato u Met	ata : Ile 820	: Ile	cac His	gag Glu	tgo Cys	e cct Pro 825) Phe	t cto	g aco	c cti r Le	tct Ser 830	c Sei	aat Asn	· 2496
55	ctt Lei	agg Arg	g gct g Ala 83!	a Lev	act 1 Thr	tcc Ser	cto Lev	aga Arg 840	; Ile	t tge	c ta s Ty	t aat r Asi	t aaa n Lya 84!	s Val	a gct l Ala	act Thr	2544
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					885					890					895		
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	cag Gln	cac His 930	cta Leu	aca Thr	acc Thr	ctc Leu	aca Thr 935	agt Ser	tta Leu	aaa Lys	att Ile	cgg Arg 940	gga Gly	tgt Cys	cca Pro	caa Gln	2832
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45	Arg	J Le	r Ser 35	Ser	Met	Phe	e Ser	40	r Ile	e Glr	Ala	ı Val	Leu 45	Glu	ı Ası	Ala	
50	Glr	1 Gl1 50	ı Lyı	Glr	ı Lev	ı Ası	a Asr 55	ı Ly:	s Pro	o Lei	ı Glu	Asr 60	Trp	Lev	ı Glı	ı Lys	
•	Let 65	ı Ası	n Ala	a Ala	a Thi	Ty:	c Glv	ı Va	l As _j	e As	75	e Lev	qeA ı	Gl:	л Ту:	r Lys	
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	Hi	s Gl	u Ly	s Il	e Va	1 61	u Ar	g Gl	n Al	a Va	l Ar	g Ar	g Gl	u Th	r Gl	y Ser	

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83 135 140 130 Val Leu Thr Glu Pro Gln Val Tyr Gly Arg Asp Lys Glu Lys Asp Glu 155 5 150 Ile Val Lys Ile Leu Ile Asn Asn Val Ser Asp Ala Gln His Leu Ser 10 Val Leu Pro Ile Leu Gly Met Gly Gly Leu Gly Lys Thr Thr Leu Ala 180 15 Gln Met Val Phe Asn Asp Gln Arg Val Thr Glu His Phe His Ser Lys 200 Ile Trp Ile Cys Val Ser Glu Asp Phe Asp Glu Lys Arg Leu Ile Lys 20 215 Ala Ile Val Glu Ser Ile Glu Gly Arg Pro Leu Leu Gly Glu Met Asp 25 230 Leu Ala Pro Leu Gln Lys Lys Leu Gln Glu Leu Leu Asn Gly Lys Arg 255 30 Tyr Leu Leu Val Leu Asp Asp Val Trp Asn Glu Asp Gln Gln Lys Trp 35 Ala Asn Leu Arg Ala Val Leu Lys Val Gly Ala Ser Gly Ala Ser Val Leu Thr Thr Thr Arg Leu Glu Lys Val Gly Ser Ile Met Gly Thr Leu 40 295 Gln Pro Tyr Glu Leu Ser Asn Leu Ser Gln Glu Asp Cys Trp Leu Leu 45 Phe Met Gln Arg Ala Phe Gly His Gln Glu Glu Ile Asn Pro Asn Leu 50 Val Ala Ile Gly Lys Glu Ile Val Lys Lys Ser Gly Gly Val Pro Leu 340 55 Ala Ala Lys Thr Leu Gly Gly Ile Leu Cys Phe Lys Arg Glu Glu Arg 355 Ala Trp Glu His Val Arg Asp Ser Pro Ile Trp Asn Leu Pro Gln Asp 60

Leu Asp Leu Lys Gln Cys Phe Ala Tyr Cys Ala Val Phe Pro Lys Asp

Glu Ser Ser Ile Leu Pro Ala Leu Arg Leu Ser Tyr His Gln Leu Pro

65

Ala Lys Met Glu Lys Glu Lys Leu Ile Ser Leu Trp Met Ala His Gly Phe Leu Leu Ser Lys Gly Asn Met Glu Leu Glu Asp Val Gly Asp Glu Val Trp Lys Glu Leu Tyr Leu Arg Ser Phe Phe Gln Glu Ile Glu Val Lys Asp Gly Lys Thr Tyr Phe Lys Met His Asp Leu Ile His Asp Leu Ala Thr Ser Leu Phe Ser Ala Asn Thr Ser Ser Ser Asn Ile Arg Glu Ile Asn Lys His Ser Tyr Thr His Met Met Ser Ile Gly Phe Ala Glu Val Val Phe Phe Tyr Thr Leu Pro Pro Leu Glu Lys Phe Ile Ser Leu Arg Val Leu Asn Leu Gly Asp Ser Thr Phe Asn Lys Leu Pro Ser Ser Ile Gly Asp Leu Val His Leu Arg Tyr Leu Asn Leu Tyr Gly Ser Gly Met Arg Ser Leu Pro Lys Gln Leu Cys Lys Leu Gln Asn Leu Gln Thr Leu Asp Leu Gln Tyr Cys Thr Lys Leu Cys Cys Leu Pro Lys Glu Thr Ser Lys Leu Gly Ser Leu Arg Asn Leu Leu Leu Asp Gly Ser Gln Ser Leu Thr Cys Met Pro Pro Arg Ile Gly Ser Leu Thr Cys Leu Lys Thr Leu Gly Gln Phe Val Val Gly Arg Lys Lys Gly Tyr Gln Leu Gly Glu Leu Gly Asn Leu Asn Leu Tyr Gly Ser Ile Lys Ile Ser His Leu Glu Arg Val Lys Asn Asp Lys Asp Ala Lys Glu Ala Asn Leu Ser Ala Lys Gly Asn Leu His Ser Leu Ser Met Ser Trp Asn Asn Phe Gly Pro His

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930

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685

680

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Leu Ile Lys Arg Cys Glu Lys Gly Ile Gly Glu Asp Trp His Lys Ile

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Ser His Ile Pro Asn Val Asn Ile Tyr Ile 965 970